

4751-79

## In this issue...



Union Carbide Retirees Association held their second reunion picnic recently at the Clark Center Recreation Park. Good food, combined with good fellowship, took the chill off the chilly Friday on the lake. Dessert sharing, dancing, singing and an interesting display of woodwork and handicraft polished off the day. As membership nears 1,000 the UCRA group readies plans for the new season, with another reunion-picnic listed as a must. Bridge playing, dancing and golf committees have been appointed and will be calling for help. Austin Aylor still wants volunteer musicians to provide sounds for future gatherings. Photographs on page 5.

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## Union Carbide gleans chemical achievement awards

An ORNL-developed process with potential for significantly extending U.S. uranium ore production has been honored as one of the year's top chemical engineering developments.

The process, now being commercially deployed, was one of four finalists in the 1979 Kirkpatrick Chemical Engineering Achievement Awards competition sponsored by the magazine, *Chemical Engineering*.

The awards recognize notable achievement in the commercialization of important, new technologies. The overall winner this year was Union Carbide Corporation's Chemicals and Plastics Division for the development of a low-pressure process for producing low-density polyethylene. The process, called "Unipol," requires less complex hardware than previous systems and results in practically zero discharge of pollutants. Polyethylene is used for hundreds of products, including plastic bags, bottles,

underground piping and communications cables.

The company also received an honor award for its "Polybed" process for extracting hydrogen from a variety of gas mixtures. The process requires measurably less energy, eliminating several conventional purifying steps and requiring lower investment and maintenance cost.

The ORNL development has the potential for recovering some 3,500 tons annually of dissolved uranium as a by-product of the chemical production of phosphoric acid, one of the principal ingredients used in manufacturing fertilizer.

This quantity of uranium, at the current market price of \$44. per pound, would be valued at \$300 million. It would increase by 20 percent the current level of production in the United States, which totals approximately 18,000 tons per year from the principal source, sandstone ores.

## United Way drive goes over the top by 102%

Despite an increase over last year's goal, it's over the top for the United Way for 1979! The three Oak Ridge Nuclear Division Plants have pledged \$797,698, 102.4 percent of the \$779,000 goal.

Plant-by-plant, near final figures (with 3 percent of the cards still out) gave the following totals:

ORGDP \$259,116 .....	105%
Y-12 \$222,236 .....	102%
ORNL \$316,345 .....	100%

Distribution of the near-million dollar figure will go to the following six counties:

Anderson .....	\$380,471
Knox .....	221,577
Loudon .....	38,791
Morgan.....	27,233
Roane .....	119,937
Blount .....	7,108

The remaining balance goes to various other counties in the area.

"Credit for attaining the goal goes to the individuals who gave it that 'extra effort' this year," Chairman Jim Cox said. "It is gratifying to see our employees respond to community needs. Our job was simple: Get the information to every employee. . . the multitude of services rendered by the vital agencies in the United Way; the rest will take care of itself. It has been a pleasure to work with individuals from the other plants in coordinating our efforts."

Meanwhile, the Paducah Plant began its drive Monday, October 15. Paducah employees are using the theme, "A Proud Tradition," emphasizing the plant's contribution to drives in western Kentucky for the past 27 years.

And, possibly more important than the near \$800,000 in financial aid to their communities, Carbiders from every section and department of the four plants contribute literally thousands of hours in volunteer assistance. Youth services, assistance to the aged and many other social advancements are enhanced through their dedicated efforts.

THANKS TO YOU, IT'S WORKING.

## Time changes again

Those clocks get rolled back again at 2 a.m. Sunday, October 28, as Daylight Savings Time ends. Employees working the midnight shift will get an extension on working hours, as they will clock in on EDST in Oak Ridge and CDST in Paducah. . . then clock out on standard time.

That extra hour of sleep you gain October 28 will be lost again come spring, when they start the cycle all over again.

It is estimated that the phosphoric acid produced in the year 2000 will contain 8,000 tons of dissolved uranium.

Bringing the uranium recovery process to the point of commercial application has been a joint effort of researchers in the Laboratory's Chemistry and Chemical Technology Divisions. Principal contributors have been Fred J. Hurst of the Chemistry

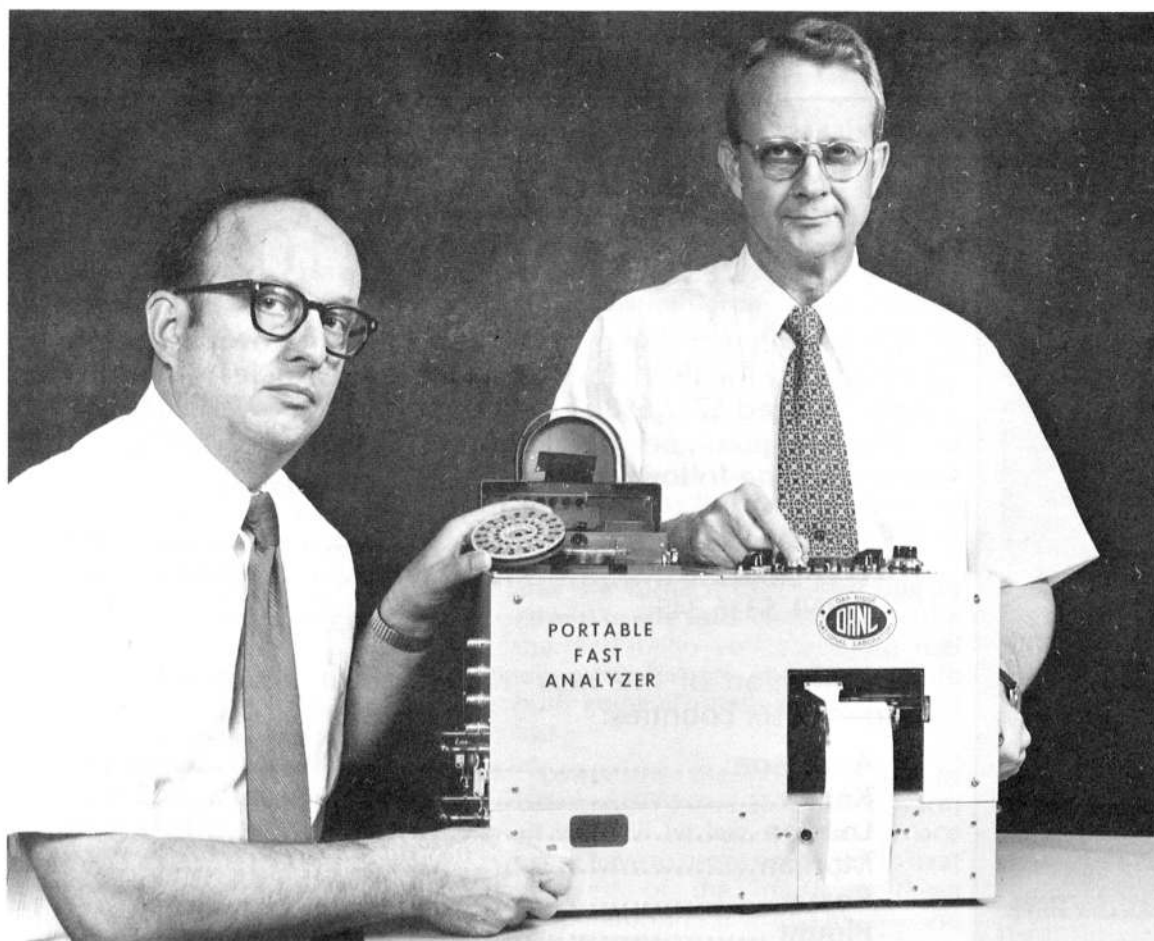
(Please see Page 8)

## Special medical claims year altered

To conform with the normal practice followed by insurance companies, the claims year under the Special Medical Plan, which covers Oak Ridge hourly employees, will be changed from an October 15 - October 14 year to a calendar year basis beginning January 1, 1980. The 1978-79 year will include the period from October 15, 1978, through December 31, 1979. Eligible expenses applied against the \$100 deductible during the period July 15 through December 31, 1979, will count toward satisfying the deductible for 1980. In subsequent years the 90-day period preceding the claims year (October 1 through December 31) will again apply. This change meets with the approval of unions representing Oak Ridge hourly employees.



# Scott wins fourth I-R 100 award

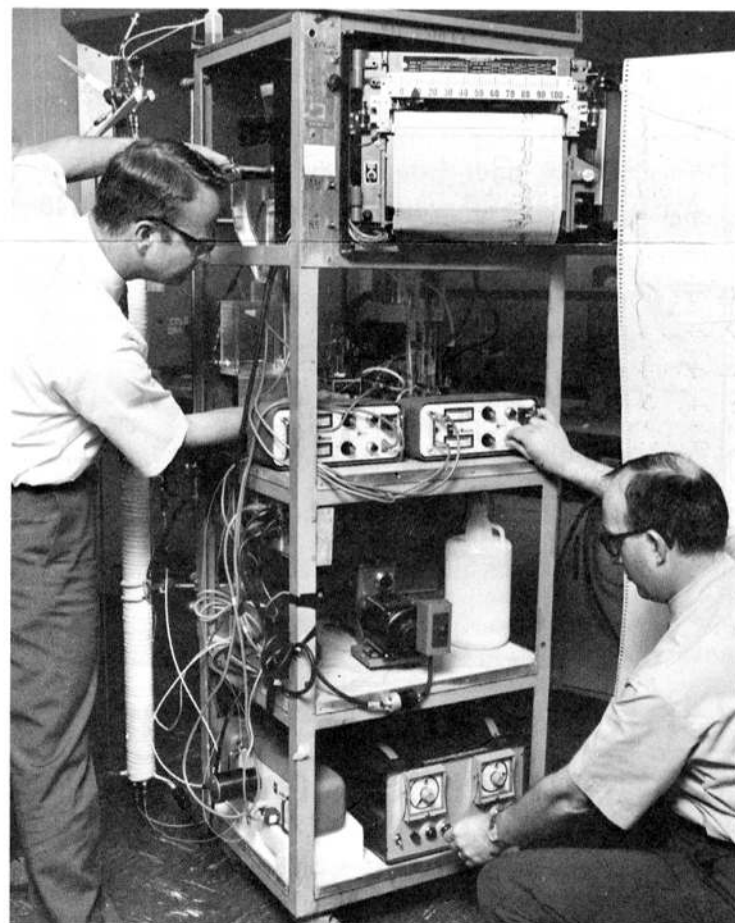
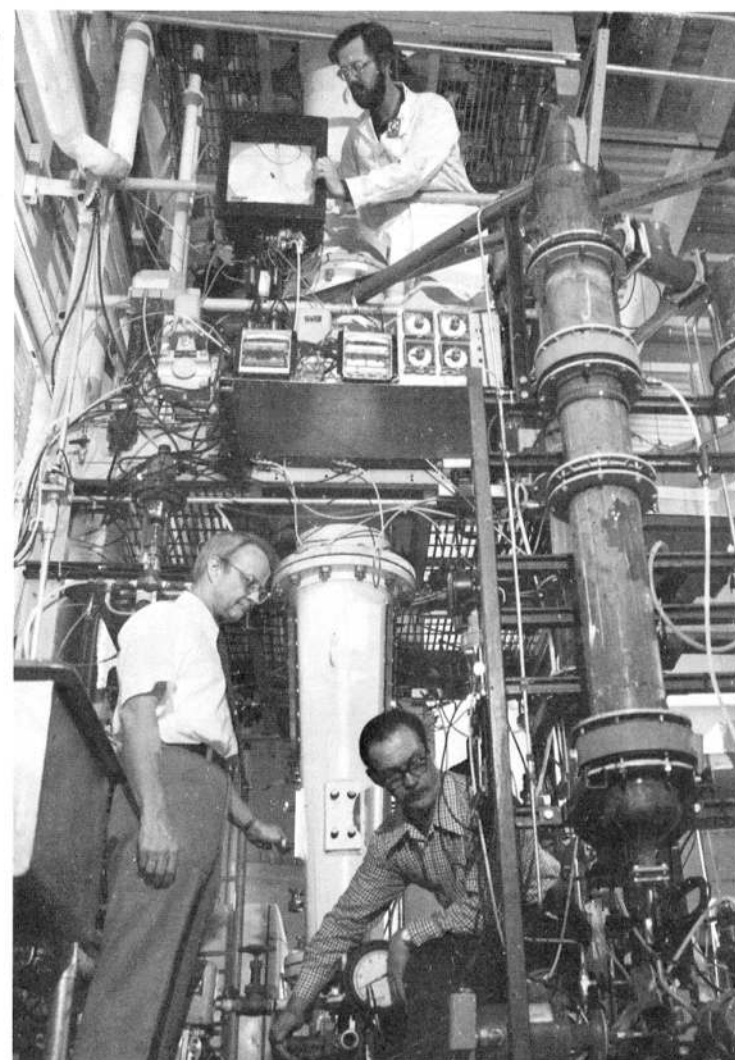


Being selected to share in an "I-R 100" award for one of the year's 100 most significant "new technology" advances is quite an achievement in itself. But consider the case of Charles D. Scott, associate director of ORNL's Chemical Technology Division, who became a four-time winner upon receiving his 1979 award last month (*Nuclear Division News*, September 20, 1979).

Scott's fourth award (a Nuclear Division record) was presented for co-developing a "bioreactor" for cleanup of liquid coal-conversion effluents.

He was previously honored for co-developing a pressurized continuous annular chromatograph (1978), a portal centrifugal fast analyzer (1977) and an ultraviolet analyzer (1971).

The "I-R 100" awards are presented annually by the magazine, "Industrial Research/Development."



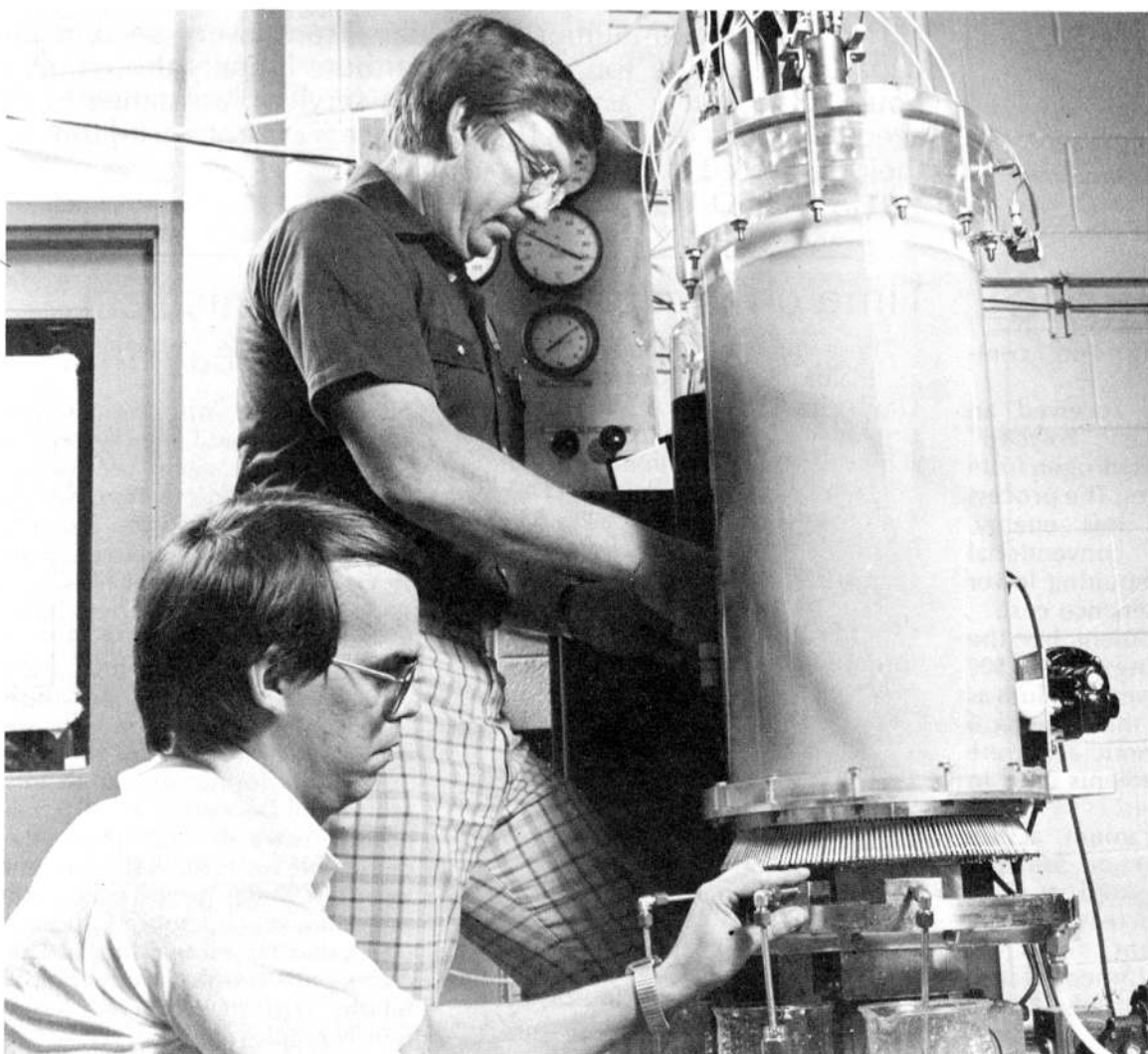
CLOCKWISE, FROM UPPER LEFT:

THE "PORTABLE CENTRIFUGAL FAST ANALYZER" is a versatile and compact analytical tool for medical diagnostic tests and environmental monitoring. John E. Mrochek (left) and Scott were principal developers of the system, which was named a 1977 "I-R 100" winner.

THIS PILOT-SCALE VERSION of the "Tapered Fluidized-Bed Bioreactor" is a unique biological fermentation system for the removal of phenols and other harmful products from waste water resulting when coal is converted to liquid and gaseous fuels. From left are co-developers Scott, Douglas D. Lee and Charles W. Hancher, who shared a 1979 "I-R 100" award for this system.

THE "UV ANALYZER," an automated device for the clinical analysis of body fluids, was selected for a 1971 award. Principal developers of the analyzer were Scott (shown at left), Norman G. Anderson, W. Wilson Pitt Jr., and Wayne F. Johnson.

THE "PRESSURIZED CONTINUOUS ANNULAR CHROMATOGRAPH" represents a breakthrough in separations technology by permitting large quantities of various kinds of dissolved materials to be separated and collected on a continuous basis. Shown with the system are Ronald M. Canon (seated) and Warren G. Sisson, co-developers with Scott and Roger D. Spence. The system was recognized with a 1978 award.





## question box...

If you have questions on company policy, write the editor, **Nuclear Division News** (or telephone your question in, either to the editor, or to your plant contact). Space limitations may require some editing, but pertinent subject matter will not be omitted. Your name will not be used, and you will be given a personal answer if you so desire.

### Wrong change houses

**QUESTION:** What can be done about women changing clothes in the men's change houses?

**ANSWER:** Adequate and distinctly separate change house facilities are provided for both men and women employees at all Nuclear Division installations. While it is common for both change houses to be in the same building, they are well separated; to our knowledge, neither women nor men have used the other's dressing room facilities. If you are aware of an instance where this has happened, please call it to the attention of your supervisor.

### Lab Records painting

**QUESTION:** Why can't the Laboratory Records offices at ORNL be painted? We have been in this space since 1966 and the area has been painted only once.

**ANSWER:** The backlog of work orders for interior painting at the Laboratory has built up over the summer months. The vault area in Laboratory Records was painted and generally upgraded last winter, and the remaining offices are scheduled to be repainted early this winter.

### Hearing aid batteries

**QUESTION:** Why has Y-12's Company Store discontinued the sale of hearing aid batteries?

**ANSWER:** The Y-12 Company Store has not and does not plan to discontinue the sale of hearing aid batteries. Five types of hearing aid batteries are currently stocked in response to customer needs. All batteries have a limited shelf life, and for this reason efforts are made to maintain a low inventory to avoid deterioration on the shelf. This can result in occasionally running out of stock on some items.

## FIRE PREVENTION



**FIRE PREVENTION WEEK  
OCTOBER, 7-13**

## about people...



**Fitzgerald**



**Collins**

**Louis M. Fitzgerald**, Y-12's Product Certification Division, has been named a fellow in the American Society for Nondestructive Testing. He is head of the Production Radiation Testing Department, and has been an active member of the Oak Ridge Section of ASNT since it was founded in 1951. He initiated the first workshop sponsored by the local section which prepared members and other employees for certification in this specialty field. He had also lent his support, through the ASNT, of the annual WATtec conference.

Fitzgerald was presented the fellowship at the ASNT fall conference in St. Louis, Monday.

A native of Burnside, Ky., Fitzgerald and his wife, Treba, live at 116 Garnet Lane, Oak Ridge.

**Clair J. Collins**, group leader in the ORNL Chemistry Division, received the 1979 Southern Chemist Award presented by the Memphis Section of the American Chemical Society at a banquet earlier this month.

Collins is an internationally recognized authority on the use of radioisotope tracer techniques to study organic reactions. The Memphis section cited his development of "new, pioneering radiochemical techniques and their use in the field of physical organic chemistry, particularly in clarifying the mechanisms of numerous chemical reactions."

Collins, who is group leader for organic chemistry and the chemistry of fossil fuels, also has served since 1964 as professor of chemistry at the University of Tennessee. He joined the ORNL staff in 1947, where he began his tracer chemistry research with carbon-14, deuterium and tritium.

Collins is a member of the American Chemical Society and has served as chairman of its East Tennessee Section and on the executive committee of the Organic Division. He has been active in the Society's program of special lectures to professional and academic groups. During 1968-69 he served as a visiting professor at the University of Tuebingen, Germany, under a Fulbright grant.

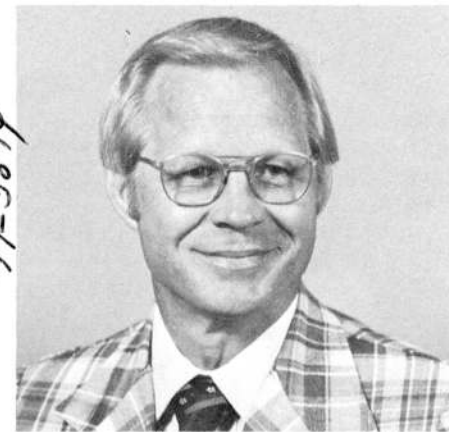
## Wesley Smith named manager centrifuge materials program

Wesley E. Smith has been named manager of the Centrifuge Materials Program in the Separation Systems Division at ORGDP.

Smith's most recent assignment was as program manager and group leader at Y-12 for weapons materials compatibility and surveillance.

A native of Maryville, he joined Union Carbide in 1966. He has a BS degree from Maryville College and a PhD from Auburn University.

He and Mrs. Smith, the former Nancy Schultz, live at 114 East Irving Lane, Oak Ridge. They have three children, Kelly, Caryn and Holly.



**Wesley E. Smith**

## Promoted at ORGDP

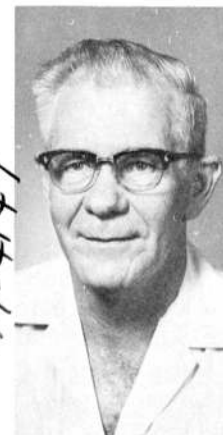
Lawrence D. Pack has been named a supervisor in ORGDP's Maintenance Division.

A native of Knox County, he joined Union Carbide in 1946 after serving more than four years in the U.S. Navy.

Married to the former Mary Case, he lives at 102 Wayne Road, Oak Ridge. The couple has three daughters, Jean, Jo Ann and Denise.

Vickie Honeycutt Tharpe has been promoted to an industrial hygienist in ORGDP's Employee Relations Division.

A native of Harriman, she joined Union Carbide in 1976 after teaching school in Gilmer County, Ga. She has a BS in biology and an MS in public health from the University of Tennessee.



**Pack**



**Tharpe**

She and her husband, John W. Tharpe Jr., live at 5029 Laurel Woods Drive, Knoxville.

## division deaths...

**Fred M. Pickering**, Y-12's Materials and Services Division, died September 28 at his 100 Broadway, Oak Ridge, home.

A native of Michigan, he grew up in Clinton, and joined Union Carbide in 1951 after serving in the U. S. Navy.

Survivors include his wife, Ella Speed Pickering; sons, James and John; step sons, Edward and Ronald Baxter; sister, Louise P. Werner; and brothers, Walter and Jack.

Services were held at Holley-Gamble Funeral Home with burial in Taylor's Chapel Cemetery.

The family has requested that memorials be in the form of contributions to the American Cancer Society, c/o Mary Aubuchon, 408 Green Drive, Clinton.

**Kenneth W. Silvers**, Y-12's Alpha 5 West Shop, died October 11 at



**Mr. Pickering**



**Mr. Silvers**

Rockwood. A native of Ozone, he joined Union Carbide in 1954 after working with the Tennessee Central Railroad.

Survivors include his wife, Lula Silvers, Skyline Drive, Rockwood; a daughter, Ann Hinds; sisters, Carolyn Gill and Pat Miller and two grandchildren. A brother, Saffell Silvers Jr. also survives.

Funeral services were held at the Evans Chapel with burial in the Oak Grove Cemetery.

## NUCLEAR DIVISION NEWS

UNION CARBIDE CORPORATION  
NUCLEAR DIVISION

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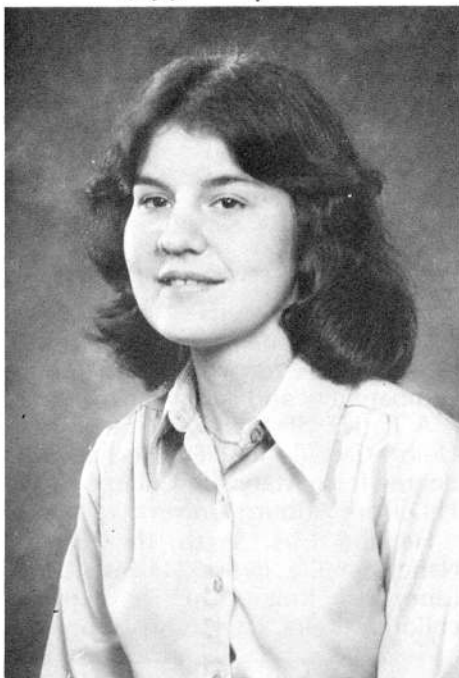
### PADUCAH

Darlene Mazzone, Bell 208





Ruth J. Maddigan



Nancy Johnston Dudney

## Wigner fellowships awarded

Nancy Johnston Dudney and Ruth J. Maddigan have been named recipients of Wigner postdoctoral fellowships by Herman Postma, ORNL director.

The Wigner fellowship program was established in 1976 to honor Eugene P. Wigner, Nobel laureate and first director of Research and Development for Clinton Laboratories, ORNL's predecessor.

Dudney and Maddigan bring to 16 the number of Wigner fellows appointed since the inception of the two-year program. The program enables engineers and physical, social and life scientists who are no more than three years past the doctorate degree level to gain experience in research areas related to national energy programs and needs.

Dudney, a native of Pittsburgh, Pa., graduated in 1975 from the College of William and Mary, Williamsburg, Va., with a bachelor's degree in chemistry. She was a member of Phi Beta Kappa and was recipient of the American Institute of Chemists' Outstanding Senior Award.

In January, 1979, Dudney received her Ph.D. in ceramics from Massachusetts Institute of Technology, where she chaired the ceramic graduate students' organization in charge of seminars and other

projects and was a member of Sigma Xi. She currently is conducting research on the physical properties of ceramics in ORNL's Solid State Division.

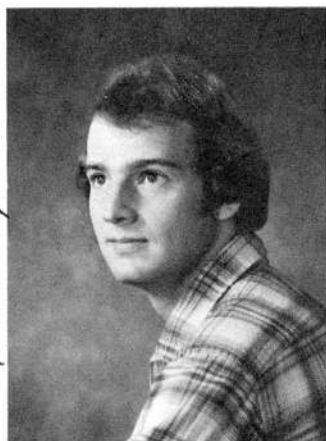
Dudney and her husband, Charlie, also an ORNL employee, live on Golden Harvest Road in Concord.

Maddigan is from Auburn, Ind. She holds bachelor's degrees in economics and mathematics from the University of California-Berkeley and Purdue University, respectively, and a master's degree in management and administrative science from Indiana University. She was recently awarded her doctorate in business economics and quantitative business analysis by Indiana University's School of Business at Bloomington.

Among the honors Maddigan has received are an Amoco Fellowship Award and the Wall Street Journal Student Achievement Award. She is a member of Phi Beta Kappa, the National Association of Business Economists, and Sigma Iota Epsilon, a national honorary and professional management fraternity.

Maddigan is assigned to the economic analysis section of the Energy Division. She resides on Tusculum Drive in Oak Ridge with her mother, Barbara, who works in ORNL's Health and Safety Research Division.

## Hamley receives NRRPT certification



Hamley

Steve A. Hamley, a technician in the Industrial Safety and Applied Health Physics Division at ORNL, has been certified as a radiation protection

technologist by the National Registry of Radiation Protection Technologists (NRRPT).

Requirements for NRRPT certification include a minimum of five years educational and/or work experience and successful completion of a written examination. Applicants must have a basic understanding of the mechanisms of radiation damage and the procedures necessary to evaluate hazards.

Hamley, who joined the ORNL staff two years ago, attends the University of Tennessee with a major in physics. He is a member of the East Tennessee Chapter of the Health Physics Society and an associate member of the Health Physics Society. Hamley resides at 2505 Maple Drive, Knoxville.

## Hagen named ISA Fellow

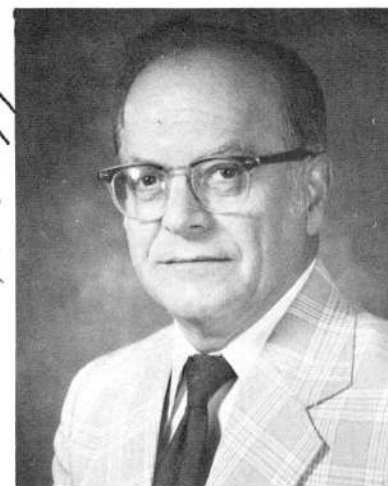
Edward W. Hagen, development specialist in the Instrumentation and Controls Division at ORNL, has been elected a Fellow of the Instrument Society of America (ISA).

He will be honored at the annual ISA Honors and Awards Luncheon, October 23 in Chicago, "for distinguished achievements in putting the reliability of nuclear instrumentation on a firm scientific basis."

Hagen joined Union Carbide in 1950 as an instrument design engineer at the Oak Ridge Gaseous Diffusion Plant. In 1962, he transferred to ORNL's Instrumentation and Controls Division and currently works in the reactor projects group.

His contributions have included work in the design, development, operation and maintenance of reactor instrumentation and process control in the nuclear industry. He serves as associate editor of the journal, *Nuclear Safety*, with responsibility for its control and instrumentation section, and as an information specialist for electric power and control systems at ORNL's Nuclear Safety Information Center. He also is a consultant on the Nuclear Technology Program for Taiwan's Institute for Nuclear Energy Research.

Hagen, a registered professional engineer in Tennessee, holds B.S. and



Hagen

M.S. degrees in electrical engineering from the University of Tennessee. Previously he gained extensive instrumentation experience in the aircraft industry and U.S. Air Force.

In addition to ISA, for which he is managing editor of the *Oak Ridge Recorder*, his professional affiliations include the Institute of Electrical and Electronics Engineers and the Tennessee Society of Professional Engineers.

Hagen and his wife, Roberta, live at 127 Mason Lane in Oak Ridge. They have a daughter, Debra, and two sons, Darrell and Dwayne.

## TAT's new class begins November 5

The Training and Technology (TAT) Project at Y-12 has a new class in Physical Testing starting November 5. The six-months course is taught at the Y-12 Plant and includes instruction in ultrasonics, radiography, liquid-penetrant and magnetic particle techniques and various destructive testing procedures such as tensile, hardness and impact. There are related classes in mathematics, science and blueprint.

Those interested in the course should contact Bob Daniels, 4-1388, or write Training and Technology, ORAU, P.O. Box 117, Oak Ridge, Tenn. 37830, for further information. The course fee is \$2,880 plus registration.

## wanted... ORNL

VAN POOL RIDERS from Papermill Road exit area to any portal, 8:15-4:45 shift. Ray Pearson, plant phone 4-6849, home phone (Knoxville) 588-9949.

VAN POOL RIDERS WANTED - can be picked up at West Town and Rocky Hill in Knoxville. Will arrive at South and West portals, 8:00 to 4:30 shift. Contact W. L. Pattison at 4-6888 or (home) 691-0781.

VAN POOL MEMBER from West Knoxville, Crestwood Hills, Brandon Road, Cedar Springs Shopping Center, to any portal, 8-4:30. Mike Caldwell, plant phone 4-4885, home phone Knoxville 691-1615.



**PERFECT CAMOUFLAGE**—This alert doe was photographed recently near the LMFB site on the reservation. The Environmental Sciences Division warns that deer are known to dart in front of automobiles, particularly at night. Many have been killed, and several cars severely damaged in the mishaps.



# Picnickin' and grinnin'—retirees at the park



## retirements. . .



**Peter K. Alquits**  
Materials Department  
Paducah  
28 years service



**William B. Boudreau**  
Engineering  
ORGDP  
24 years service



**G. Keith Bryant**  
Employee Relations  
Paducah  
28 years service



**Helen C. Hobson**  
Computer Sciences  
ORGDP  
32 years service



**Carl M. Jenkins**  
Material Transfer  
and Packing, Y-12  
28 years service



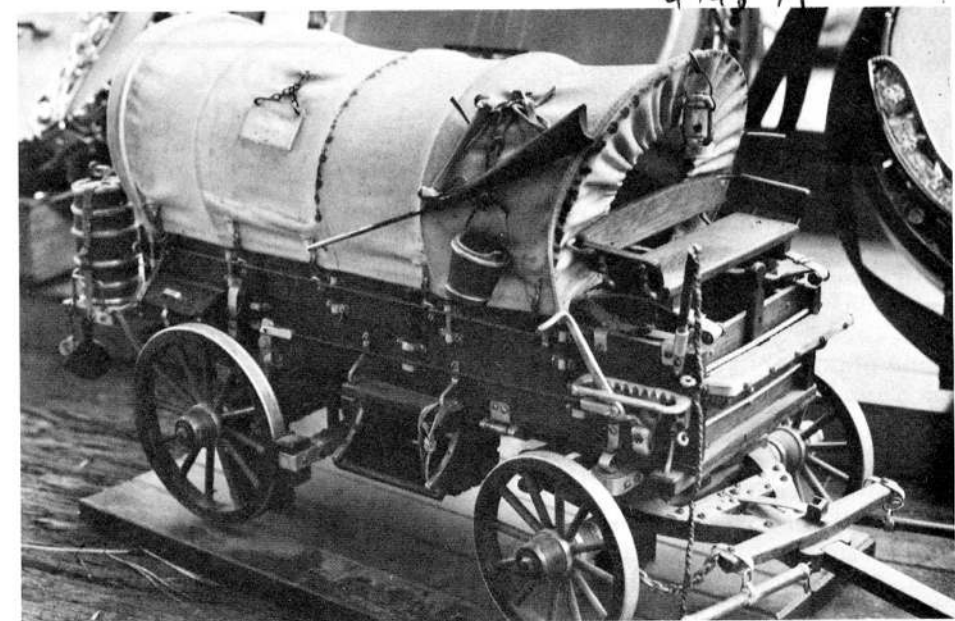
**James K. Luton**  
Materials Department  
Paducah  
21 years service



**Mose Sanders**  
Building Services  
Y-12  
28 years service



**Thomas P. Wicker Jr.**  
Engineering  
Y-12  
35 years service





# recreationotes. . .

## Bowling Leagues. . .

### Y-12 Classic. . .

The Splinters have a two point advantage over the Ridgers. Weekly high scores were awarded to Ken Brown, of the Pendulum, for high handicap game and series of 286/744. The Pendulum won high handicap team series with a 3180. The Ridgers rolled a 1144 for high handicap game.

### UCC Mixed. . .

The Alley Cats lead over the Go Getters and Safe Guards by one point. Season high handicap series are held by John Brown with a 717, and Lori Fenstermaker with a 661. Season high handicap game is held by Bill Jago/John Brown with a 257, and Lori Fenstermaker with a 248. Weekly scratch highs went to John Brown for a 215/591, and Laura Walker for a 196/526.

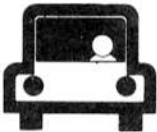
### K-25 Tuesday. . .

The Shifters have a one and one-half point lead over the All Stars in the K-25 Tuesday Men's League. Weekly highs went to C. H. Peterson, of the Atoms, for a 605/704 series, and J. H. Peer, of the all Stars, for a 235/256 game.

### ORNL A. . .

The Zots have a five point lead over the Fire Balls. Weekly prizes were given to the Zots with high handicap series of 2939, Richard Greter for high handicap series of 652, G. N. Case for high handicap game of 240; and Callaham for high scratch game of 216.

## wanted. . .



### Y-12 PLANT

RIDE WANTED from Lenoir City to Central Portal, 7:30 a.m. to 4 p.m. Betty Malone, plant extension 4-2289, home phone Lenoir City 986-8560.

CAR POOL MEMBERS from Lincoln Park/Clinton Highway area/Merchants Road, to East Portal, 8 to 4:30. Bill McManus, home phone Knoxville 546-2470.

JOIN CAR POOL from Sweetwater to Bear Creek Portal, J Shift. Michael Davenport, plant phone 4-3485, home phone Sweetwater 337-5298.

RIDE from Longmire Road/Carriage Drive, Clinton, to Central Portal, 7:30-4:00. Mary Bass, home phone 457-4619.

VAN POOL RIDERS wanted from West Town, Kingston Pike, Cedar Bluff and Mabry Hood Roads, Knoxville, to any portal, straight days. C. W. Greene, plant extension 4-0437, home phone Knoxville 690-3762.

### ORGDP

CAR POOL MEMBER from the Athens/Etowah area. Straight day shift. Any portal. Jim McClane, plant phone 4-9575, home phone 263-5891.

### ORNL C. . .

The Alley Rads lead the ORNL "C" League by 20 points over the Hit Men. Weekly prizes were awarded to the Pin Heads for high handicap team series rolling a 2949. High handicap series was rolled by McKnight, of the Easy Rollers, with a 664. Carter, of the Hit Men, had a 252 high handicap game; while Kitchings, of the Alley Rads, rolled a 234 scratch game.

### Family Mixed. . .

After three weeks of bowling, the Two Plus Two have a four point lead over the Strike-Outs in the Family Mixed League. Season high handicap series belong to Ron Young with a 670, and Nelline Ross with a 663. High handicap game is held by R. B. Amos with a 239, and Barbie Palmer with a 230. Weekly scratch series were rolled by Ron Young with a 544, and Tillie Plaza with a 507.

### Monday Mixed. . .

The Good Luck 4 are remaining the leaders with a two point advantage over the Roadrunners. Charlies Angels rolled a 717/2035 to take both high team scratch game and series. Harold Kline of the Charlies Angels captured both categories for men with a 240/603. High averages belong to Harold Kline with a 190, and Retha Beal with a 161.

### Turkey shoots. . .

The Recreation Department has announced the schedule for turkey shoots for the remaining days of autumn. They are usually held from 9 a.m. until noon at the Oak Ridge Sportsman's Association range.

Sponsors and dates follow:

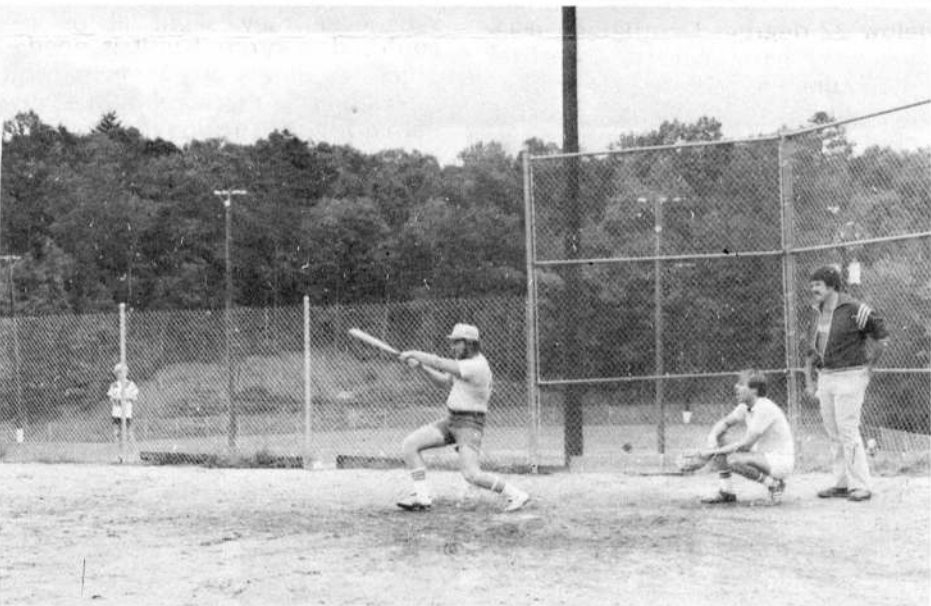
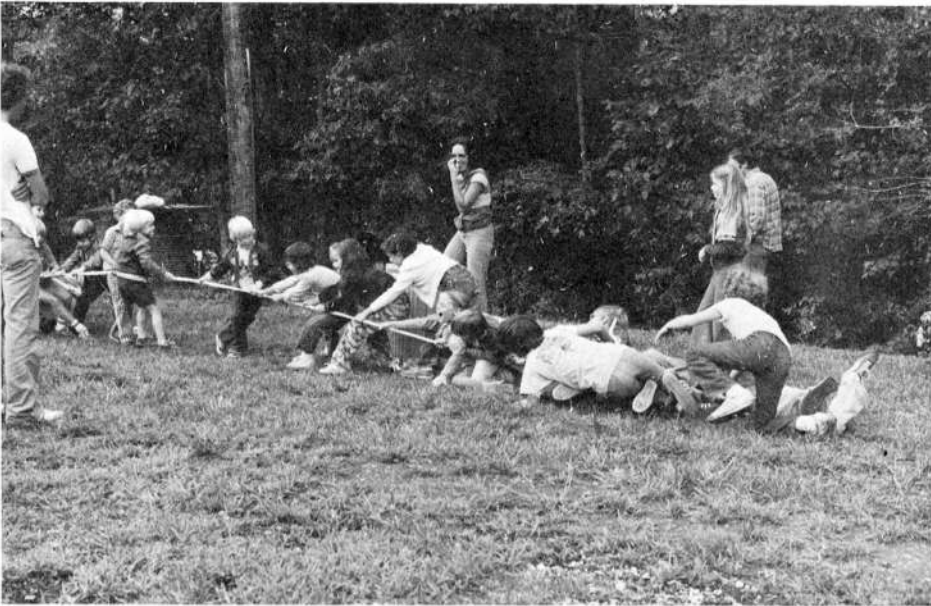
Date	Sponsor
October 20	Y-12 D Shift
October 27	Y-12 C Shift
November 3	K-25 C Shift
November 7	X-10 B Shift
November 9	X-10 D Shift
November 10	Y-12 B Shift
November 15	X-10 A Shift
November 16	Y-12 C Shift
November 17	K-25 A Shift
November 24	Y-12 A Shift
December 1	Y-12 C Shift
December 8	Y-12 D Shift
December 15	K-25 A Shift
December 22	Y-12 A Shift

### ORNL

FORM OR JOIN CAR POOL from vicinity of Lakeridge Subdivision on Northshore, Concord, to any portal, straight days. H. M. Porter, plant phones 6-7643 or 4-5321, home phone 966-7455.

CAR POOL from Kingsgate Subdivision, Concord area, to East or North Portal, 8-4:30. Nancy Wright, plant phone 4-6273, home phone 966-5228.

RIDE OR JOIN CAR POOL from Powell area to West Portal, 8-4:30. Jim Womac, plant phone 4-4116, home phone 947-9707.



HOOTENANNY '79 STYLE—The 16th annual ORGDP Hootenanny was held late in September at the Clark Center Recreation Park, with about 500 people coming. The softball tournament was won by the General Accounting Computer Sciences team. Various childrens' games kept them entertained and allowed the parents to enjoy the entertainment provided throughout the day. Barbequed pork was enjoyed by the adults and hot dogs by the children.





## Hypothermia:

### Danger for young and old

by T. A. Lincoln, M.D.

Accidental hypothermia is an unintentional and dangerous fall in body temperature caused by exposure to a cold environment. Many people associate it with hikers who started out on a warm fall day and then were caught many miles from their car when the weather suddenly turned cold. Others associate it with immersion in cold water as the result of a boating accident. Unfortunately, these examples represent only the "tip of the iceberg." Hypothermia is most common among the elderly and those addicted to alcohol and drugs.

Because of the high cost of fuel or electricity, some elderly people keep their thermostats set too low. After a fall or some other sudden incapacitation, they may lie for many hours on a cold floor. An illness may also begin with hypothermia. Although shivering is a valuable warning sign and usually motivates most people to try to get warmer, it does not always occur in the elderly or in people who are intoxicated or ill. When the body temperature falls below 32 degrees Centigrade (89.6 degrees Fahrenheit), mental functioning may be impaired, thus interfering with the victim's seeking help.

#### Tips for saving lives

The death rate in alcoholics, drug addicts and the elderly who have severe hypothermia is extremely high. It is also high in healthy young people. Many fatalities could be prevented if people were aware of how to save themselves. Young people who go on hiking or boating trips in the spring and fall need to be warned about the consequences of a sudden change in weather or an accident. The following tips for detecting or preventing hypothermia could be lifesaving if consistently applied.

Always wear a life jacket when in a boat. Although this is important any time, it is absolutely essential in cold weather. If one falls into cold water, one should not try to swim more than a short distance. All clothes should be kept on, and one should roll up in a ball and use the life jacket to keep the head out of the water. Heat loss can be reduced by over 50 percent by such a maneuver. Sometimes rescue is only 15 to 20 minutes away, so survival is possible. Frantic swimming causes rapid exhaustion and loss of body heat. Calmly swimming toward a nearby overturned boat and pulling oneself out of the water is obviously desirable, if possible.

#### Take food along

Never go on a hike without snack food. Food can be lifesaving. When faced with a much longer hike than anticipated because of a washed-out

bridge or some other calamity, having adequate high-energy food can help prevent exhaustion and help generate body heat.

When shivering begins, it is usually better to "go to the ground" to get out of the wind and secure as much shelter as possible. All available energy should be used for heat production and not for physical exertion. At such times, having candy or other foods containing sugar can help generate energy. Many people have survived during a sudden snowstorm by burying themselves in the snow.

#### Beware wind chill

Do not impetuously pull off wet clothing. If plastic tenting or rainwear is available, it is better to cover up and keep out of the wind. The wind chill can be severe if clothes are removed in an effort to put on dry ones.

Friends or relatives should contact elderly people living alone once or even twice daily to be sure that they are keeping warm enough, are eating and are taking care of themselves. Whenever they seem ill or just confused, a prompt visit is needed urgently. Illness is frequently the most important factor that brings on hypothermia in the aged. They may not have typical symptoms and may not realize that they are ill. They may not even realize how cold they are.

Keep your head covered. More heat is lost from the head than any other part of the body. If one is not physically active, keeping a nightcap on all the time while indoors makes sense if the thermostat is kept below 63°F. Nightcaps may even become the new fashion rage this winter!

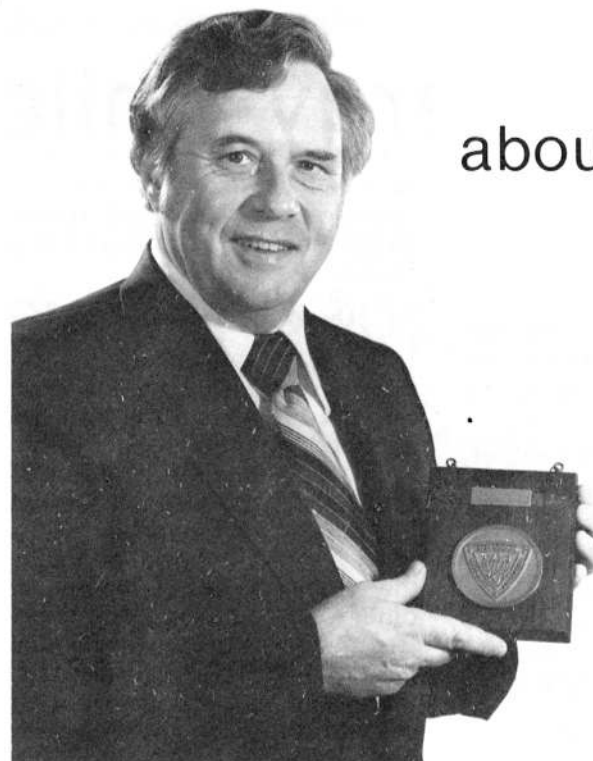
Watch out for mood changes. In hikers, hypothermia and exhaustion often come on slowly, but the first sign can be extreme irritability and aggression. Later, confusion and lethargy become prominent.

#### If shivering stops

If shivering stops, look out! It brings a reduction of discomfort but is a dangerous sign. It is called "basking in the cold." Hikers who are pushing on in spite of falling body temperatures may not shiver at all or at least much less.

Remember that dangerous hypothermia is possible when surrounding temperatures are far above freezing. Cooling of the body core only 5°C (9°F) from 37°C (98.6°F) to 32°C (89.6°F) can disable a person from effective self help. If an individual is inadequately clothed and exposure is prolonged, hypothermia can occur at temperatures in the 50's and 60's F and even higher.

Planning and being prepared for the unexpected are obviously the only ways to prevent hypothermia.



## about people

**Roy G. Cardwell**, of ORNL's Finance and Materials Division, has received the first Special Service Award presented by the Institute of Nuclear Materials Management (INMM).

Presenting the award at the Institute's annual meeting in Albuquerque, INMM Chairman G. Robert Keepin cited the significant growth and expansion of the Institute during Cardwell's service in executive positions. He is immediate past chairman and has been a senior officer for the past six years.

INMM is the only professional society dedicated exclusively to nuclear safeguards and management. Among its activities are the certification of nuclear materials managers, development of nuclear materials standards for the American National Standards Institute, and continuing professional education for personnel in the safeguards and nuclear management field.

## anniversaries. . .

### Y-12 PLANT

#### 35 YEARS

Willard C. Crawley, General Shops; Ted C. Brooks, Process Maintenance; Clifton M. Voekel, Chemical Services; Ozella Ward, Plant Laboratory; and Albert B. Campbell, Beta 2 Chemistry.

#### 30 YEARS

Robert C. Weaver, James F. Winfree, Samuel T. Shultz and Lloyd C. Campbell.

#### 25 YEARS

Ira L. Hill, Charles E. McAlister, John W. Williams, Walter G. Seymour, James E. Barnes, Esridge Collins, Ralph E. Newcomb, Bernard E. Monroe and Fritz C. Fluri.

#### 20 YEARS

Carl F. McCulley, Roy C. Johnston Jr., Charles H. Williams and Jeanne D. Moody.

### ORGDP

#### 35 YEARS

Flora M. Lewis, Finance, Materials and Services; Von H. Carpenter,

Operations; and Vestal M. Austin, Operations.

#### 25 YEARS

Thomas A. Turley Jr., J. Will Jones, William D. Ross and Milo E. Ward.

#### 20 YEARS

Kendall L. Brady, Dayle D. Thomas and Frank Patt.

### ORNL

#### 35 YEARS

Elmer C. Reaves, Plant and Equipment; Allen D. Ryon, Chemical Technology; and Leo J. Brady, Analytical Chemistry.

#### 30 YEARS

Horace M. Thompson Jr., Biology; Jesse A. Newman, Plant and Equipment; and John H. Cooper, Analytical Chemistry.

#### 25 YEARS

Raymond M. Evans, C. Ward Bandy, Leonard C. Jenkins, Reginald H. Miles and Alden V. Wilder.

#### 20 YEARS

Thomas W. Pickel Jr., Richard N. Penland Jr. and Ronald G. Pope.

## Safety Scoreboard

Time worked without a lost-time accident through October 11:

Y-12 Plant	189 Days	6,137,000 Employee-Hours
ORGDP	303 Days	9,570,133 Employee-Hours
ORNL	27 Days	636,082 Employee-Hours
Paducah	140 Days	1,434,800 Employee-Hours



## Energy advisor

# Save energy while heating your home

October has been proclaimed International Energy Conservation Month. The United States and 19 other industrial nations are sponsoring special events, programs, discussions, technological demonstrations and reports on progress toward energy conservation.

With the advent of cooler weather, October is also the appropriate month to present some energy-saving tips on home heating, which accounts for a large portion of residential energy costs. The following suggestions provided by the Department of Energy could help you save some precious energy.

Don't turn the heat on until you have to.

If you use electric furnace heating, consider a heat pump system. The heat pump uses thermal energy from outside air for both heating and cooling. Costs for these pumps run from about \$2,000 for a whole house to about \$425 for a room size. But they can cut heating by 30 to 40 percent and might provide some savings in cooling costs.

If you plan to buy a new gas heating system, ask your gas utility or public service commission about the savings potential of electronic ignition. Ask also about possibilities for retrofitting the system you may already own.

Consider the advantages of a clock thermostat for your heating system. The clock thermostat will turn the heat down automatically at a regular hour before you retire and turn it up again in the morning.

Consider buying a properly sized furnace that incorporates an automatic flue gas damper. This device reduces the loss of heat when the furnace is off. Contact your gas utility or oil supplier for guidance.

Insulate heating ducts in unheated areas.

Don't use your fireplace for supplemental heating when your

furnace is on unless you take one of the measures suggested below to lessen the loss of heated air from the house.

### Lessening fireplace heat loss

The warmth from a fire on the hearth generally doesn't radiate through the house; the heat gain is confined to the room with the fireplace. And when your furnace is on, too, a considerable amount of heated air from the rest of the house flows into the fireplace and goes up the chimney. The temperature in other rooms of the house goes down, and the furnace uses more fuel to raise it to the level controlled by the thermostat. So you use more fuel when the furnace and fireplace are both going. To help lessen this heat loss:

Lower the thermostat setting to between 50°F and 55°F. Some warm air will still be lost, but the furnace won't have to use as much fuel to heat the rest of the house to these temperatures as it would to raise the heat to 65°F.

Close all doors and warm air ducts entering the room with the fireplace, and open a window near the fireplace about 1/2 to 1 inch. Air needed by the fire will be provided through the open window, and the amount of heated air drawn from the rest of the house will be reduced.

If you have a simple open masonry fireplace, consider installing a glass front or a glass screen. This will cut down on the loss of warmed air through the flue.

### Save when the heat is on

Lower your thermostat to 65°F during the day and 55°F at night. You can save on fuel costs for every degree you reduce the average temperature in your home.

Keep windows near your thermostat tightly closed, otherwise your furnace will be kept working after the rest of the room has reached a comfortable temperature.

Have your oil furnace serviced at least once a year, preferably each summer, to take advantage of off-season rates. This could save you 10 percent in fuel consumption.

Check the duct work for air leaks about once a year if you have a forced-air heating system. To do this, feel around the duct joints for escaping air when the fan is on. Relatively small leaks can be repaired simply by covering holes or cracks with duct tape. More stubborn problems may require caulking and taping.

If you have oil heat, have your service company check to see if the firing rate is correct. A recent survey found that 97 percent of the furnaces checked were overfired.

Don't let cold air seep into your home through the attic access door. Check the door to make sure it is well insulated and weatherstripped, otherwise you'll be wasting fuel to heat the cool air.

Dust or vacuum radiator surfaces frequently. Dust and grime impede the flow of heat. And if the radiators need painting, use flat paint, preferably black. It radiates heat better than glossy.

### Clothing can help

For comfort in cooler indoor temperatures, use the best insulation of all—warm clothing.

The human body gives off heat. Dressing wisely can help you retain natural heat.

Wear closely woven fabrics. They add at least half a degree in warmth.

Slacks are at least a degree warmer than skirts.

Sweaters are especially good insulators. A light long-sleeved sweater equals almost 2 degrees in added warmth; a heavy long-sleeved sweater adds about 3.7 degrees; and two lightweight sweaters add about 5 degrees in warmth because the air between them serves as insulation to keep in more body heat.

## Chemical engineering awards

(Continued from Page 1)

Division and David J. Crouse of the Chemical Technology Division.

The development is regarded as one of the most successful examples of the transfer of ORNL research and development, which has been supported by public funds, to private commercial application.

Currently the process, known as DEPA-TOPO, serves as the basis of three large commercial plants, and at least two more are under construction.

DEPA-TOPO is a two-cycle solvent extraction process which recovers uranium contained in wet-process phosphoric acid. The process uses di(2-ethylhexyl) phosphoric acid (DEPA) plus trioctyl phosphine oxide (TOPO), which has a high extraction power, and a novel stripping method which makes use of the wet-process acid itself.

The first (or concentration) cycle of the process involves three unit operations: 1) pretreatment, to prepare the acid; 2) solvent extraction and uranium stripping, to concentrate the uranium by a factor of over 70; and 3) posttreatment of the acid, to ensure that it will not return organic contaminants to the acid plant. The second cycle is used to purify the uranium.

Unlike other methods to recover uranium normally lost in fertilizer manufacturing, the ORNL extraction process results in few contaminants, has lower chemical reagent costs and yields a high-grade product.

The process is expected to have a significant impact on already scarce supplies of uranium required to fuel the current generation of U.S. and foreign nuclear power reactors, while removing a radioactive contaminant from fertilizers.



**NEWLY CERTIFIED ENGINEERS**—The Oak Ridge Chapter of the Tennessee Society of Professional Engineers honored local members who have recently received registration in Tennessee as professional engineers. In the front row, from left, are Roger Kisner, Joe Drago, Sam Zngri, Doug Jannel, Joe McEnerey and James Vath. In the second row are John Begavich, Ken Chipley, Sam Hamblen, Phil Whitfield and John Mason. In the back row are David Richard III, Ed Pierce, John Conklin, Ken Childs, Steve Baker, Jim Park and Victor Vaughn. Other professional engineers not present were Donald Adams, David Campbell, Ronald Senn, Joyce Angelelli, Steve Shipley, Roy Barker, Stephen Combs, James Cowan, William DeWitt, Edward Fox, George Harper, Robert Johnson, John Kirkpatrick, John Marshall, Phillip Moor, John Reed Jr., Larry Rickertsen, Jan Talbot and Paul Williams.



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